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ART. XXIII.—*Reports on the Manchur Lake, and Aral and Narra Rivers, by CAPTAIN POSTANS, and R. C. KNIGHT, Esq., communicated by CAPTAIN POSTANS.*

(Read June 15, 1844.)

AT a period when every geographical feature of the river Indus and its outlets or tributaries may be considered of interest, the following reports on that peculiar branch called the Narra, which, leaving the main stream on the western bank, a little below Sukkur, debouches at Sehwan, are offered for consideration. The first of these reports was drawn up by the author, in consequence of his being one of the first Europeans who had pursued this route; and the second by the assistant-surgeon attached to the steamer, which was sent experimentally to test its value in avoiding the delays and strong currents of the main stream during certain portions of the year; the result was so far satisfactory, that with a well adapted boat it is evident the voyage over this distance might be made in about sixty hours, or one-third of the time consumed on the river itself. The great feature and natural curiosity of this portion of the Indus, however, is the great lake Manchur, an expanse of waste water of the mighty Indus, which is formed by the main streams rushing into it from north and east, and which is probably 200 square miles in extent. The greater portion of the surface of this lake is covered with the lotus plant, in all its beauty and luxuriance, and it is perhaps impossible to imagine a more delightful voyage than across this magnificent expanse of water, the scene being much enlivened by the great number of fishing boats; a considerable portion of the poorer Sindhian population finding their homes and subsistence in this locality. The quantity of water-fowl on the lake Manchur exceeds belief, and the method adapted for entrapping them by the poorer natives is curious; a certain number of common chatty pots are in the first place allowed to float on the surface of the lake, baited with grain; when the birds have become perfectly familiarized with these, the fowler himself puts a similar one on his own head and descends into the water up to his chin, where he remains perfectly motionless; the birds then attempt to take the grain, and are ensnared by a small net thrown over them: in this great numbers are taken and used as food.

The name applied to this lake, "Manchur," may possibly have some connection with "Mansura," which according to the reports of Edrisi and Abul Fazil, should have been somewhere in this

locality; the Narra, it is well known, contributes with the main stream to form that particularly rich portion of Sindh, called the Chandkoh District, which by the Greek historians was known as Prasiana, or the verdant, and which was to the Amirs the most profitable of their landed possessions. Ahmed Khan Laghari, the celebrated vizir, held rich and important jaghirs here. I may conclude these remarks by observing that the late head of the Government of India was pleased to attach great importance to this route as a means of saving time in the intricate Indus navigation; and it should, there can be no doubt, be the subject of still farther inquiry and exertion, now that all connected with that magnificent though much over-rated stream, (I speak as to navigable facilities, and, therefore, commercial value,) is likely to be of vital importance to the British Government, and when steam is intended to be carried out on an extensive scale.

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#### REPORT OF CAPTAIN POSTANS.

During a certain portion of the year the main stream of the Indus from Sehwan to within a few miles below Sukkur, is abandoned by the Indus boatmen, who, from April to September, invariably pursue the more circuitous but easier route by way of the Aral and Narra rivers, and the great Lake Manchur. As the result of my observations whilst travelling in this direction led to the conviction, that it offers unusual advantages for steamers of even moderate powers, I have drawn up the following brief notice, with a view to call attention to the subject.

The great stream of the Indus, meeting the formidable opposition offered to its current, by the hills which join the river a few miles below Sehwan, throws off a branch in a westerly direction towards that town, and during the height of the inundations, and consequent greatest velocity of the current, this branch is continued up the Aral river to the distance of nearly twenty miles<sup>1</sup>, until it is lost in the waters of the great lake Manchur. The Aral river may be said to commence immediately above Sehwan, from the main river to the town; it is a broad open channel, but its general width above is probably about forty yards, very uniform, and its depth every where very great; the banks are low, even with the water's edge, with but little cultivation, and are clothed with thick jungle of the tamarisk bush, which here, as elsewhere in Sindh, often attains the size of a jungle tree. The course of the Aral is very straight; the circumstance I have mentioned of the stream from the main river traversing *upwards* in the Aral, as far as its junction

<sup>1</sup> All distances merely conjectured.

with the lake, occurs, I have reason to think, during only a limited period, since a fleet of boats pursuing this route in the month of May last found the clear water of the Aral issuing from the lake, to within a short distance of Schwan, when the current from the main stream ceased to be in their favour. In the beginning of July, however, which was the period of my journeying in this direction, the contrary was the case; we were carried *with the stream* from the Indus up the whole distance of the Aral; the muddy water being observable even for some time after we entered the lake. I mention the above fact with the view of demonstrating the great increase in the velocity of the main stream, during the height of the inundations. The great Lake Manchur, when swelled by the inundations, is an enormous expanse of water, said to be 20 miles in length, by some 10 in breadth, and covering an area probably of about 200 square miles; it extends from the foot of the hills to the west, and is lost in the low lands to the eastward; the ordinary channel for navigation is nearly in the centre, where the water is beautifully clear and very deep. It would appear that the same facilities for traversing its waters, which were observable when I crossed the lake, would always exist, since its main body is not affected by the inundations; these appear to be spread over the low lands and to leave the centre of the same depth, or nearly so, throughout the year; the Aral and Narra rivers, however, are completely dry from November to April. The traffic of boats upon it occupied in fishing or transporting grain appeared to be very great. The surface of the lake is covered for miles with the lotus plant; it abounds in fish, and whole families, as in the great river, find their homes in small craft, and look for subsistence to the produce of their nets. The Narra has its mouth in about the centre of the northern shore of the lake; the channel for some distance is confined, and passes through a dense jungle of the tamarisk, but the appearance of the country soon changes, and, for the greater part of its course, this stream flows through an open land, which will probably vie with any of the same extent in the East for richness of soil and capabilities of fertility. The general breadth of the Narra I should calculate at from 80 to 100 yards, and the average rate of current probably 2 miles, as conjectured; its depth close to the banks was generally 20 feet. The term "Narra," signifying in vulgar Sindee a snake<sup>1</sup>, is well applied to the continued windings of the stream; but these, from the dulness of the current, offer no obstacle to navigation, even at the height

<sup>1</sup> I am not quite sure if this term is correct, but the natives to whom I applied so designated it; many other tortuous streams in Sindh bear the same appellation.

of the floods: a boat of forty Khumars was tracked by five men at the average rate of sixteen miles a-day. The distance from Schwan to where the Narra issues from the main stream is estimated by the natives at 200 miles, 100 koss, or about double that of the river itself, and I should not think it overrated. The general effect of this river is of its being a canal; it is difficult to imagine that its course is not artificial. The portion of the country lying between the Narra and the main stream has, of course, a double advantage of irrigation, and as the lands lie generally lower than the Narra, a simple drain suffices to turn the waters upon them. The soil is a rich alluvial, and rice is the principal cultivation, though the cotton plant, of the large description peculiar to Sindh, is seen in great perfection on the higher banks. This portion of Sindh, is more thickly populated than most others; villages abound on both sides the river, many of them wattled, or composed of huts built of temporary materials, surrounded by numerous flocks of sheep and cattle, the latter of an exceedingly fine description. There are also several towns of size and importance, the principal being Khyrpoor. The numerous Government boats laden with grain, which I learnt were on their way to Hyderabad, attest the importance of the revenue derived by the Amirs from the rich territory; at the same time, their usual system of excess in taxation is doubtless the cause of the comparatively small portion of land under cultivation, in districts which might be made productive to an almost unlimited extent.

As I journeyed by the Narra River during the most favourable season for navigation, I may be overrating the advantages which it presents as a general route, but I think there can be little doubt that for six months in the year it would offer the advantage over the main stream of slow current, a uniform and great depth of water, with abundant supplies, not forgetting the important article of fuel; and as such may, perhaps, merit a survey and detailed report.

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#### REPORT OF R. C. KNIGHT, Esq.

On the morning of the 19th June last [1841] we left Schwan in the Honourable Company's iron steamer "Meteor," and proceeded through the Aral river towards Lake Manchur, and arrived at the spot where the river joins the lake in one hour and ten minutes from the time of starting. At this period, the current of the Aral was setting *westward into the lake*, at the rate of one mile and a half per hour.

This river branches off from a large ramification of the Indus close

by Sehwan. During the period of the inundation, the water of the Indus, rising above the level of Lake Manchur, regurgitates up this river into the lake, establishing a westerly current, until the main river begins to subside, when, the lake being now the higher, an easterly reflux takes place through the Aral. Like all the rivers in Sindh that I have seen, the borders of the Aral present the same general appearance, namely, they are skirted with the tamarisk, unless where it gives place to patches of cultivation, of which the northern banks showed more marks than the southern. Its breadth is from 120 to 140' feet, average depth of the fair channel from 15 to 18 feet; and, judging from the appearance of the banks, the water seemed to have risen to within a foot, or nearly so, of its greatest height. The channel winds considerably, but is perfectly clear of all obstructions; its average course is nearly due east and west, and the distance from Sehwan to where it enters the lake is 10 or 11 miles.

Steering into the lake in a westerly direction for a short distance, and gradually hauling up to north-west, with variable soundings of from 3 to 8 feet, we entered, about four miles from the Aral, the fair channel, which winds through a huge field of lotus plants, that cover the surface of the lake for miles, intermingled with clumps of long reeds and rushes. This channel, at the time we passed through, was from 12 to 14 feet deep, general breadth from 35 to 45 feet, and it is as well marked as any channel can be,—the lotus leaves floating on the surface of the water on each hand marking it as accurately as if a line of buoys had been laid down for the purpose. It appears to be in the very centre of the lake, traversing it in a north-westerly direction; and when we passed through the water was still, or at least, there was no appreciable current. The stillness of the water and the non-existence of lotus in this channel, may be accounted for from the fact that the Aral at one end of the lake and the Narra River at the other, pouring their waters simultaneously into its basin, must at length neutralize any pre-existing current; but, when the main river subsides, and the waters of the lake once more flow through the Aral, a current must doubtless take place in this channel, thus keeping it clear of the lotus, and so disturbing the plant as to prevent its taking root.

We passed two or three large cargo boats lying here, and several fishermen with their families were observed here and there, following their occupation in small boats, which glided about over this great lotus field.

<sup>1</sup> This is not from actual measurement, but merely on estimation.

About an hour and three-quarters' steaming carried us out of this channel into clear water, having patches of a small plant like common sea-weed floating under its surface. Depth of water from 6 to 7 feet, gradually deepening to 10 and 12. In one hour from the time of leaving the lotus field we had crossed the lake and reached the clumps of long reeds and grass which line its northern and eastern borders; the whole having the appearance of a large marsh with openings at intervals sufficient to admit boats of small burden<sup>1</sup>. Steering along the verge of this mass of reeds and grass, gradually hauling up in a north-westerly direction, in one hour more we arrived at the entrance of the Narra, which is here a rapid muddy stream, about 40 feet broad and 6 feet deep, obscured<sup>2</sup> and impeded by large clumps of long grass, and elephant reed. It is very tortuous, and sets into the lake from the north-east. The velocity of the current at this time was 3 miles per hour.

The above-mentioned obstructions could be easily cleared away, and a good fair way opened at very little cost; meanwhile, so dense are those clumps of reeds, &c., that even native boatmen, as I have been informed, sometimes have a difficulty in finding the mouth of the river. In consequence of the winding of the stream, the eddies and shallows, and no doubt the peculiar build of the vessel, she answered her helm so badly that she went bumping along against the banks right and left, at short distances, unless it was when we occasionally got into a long straight reach. In shallow water her helm was nearly useless.

As we proceeded up, the river gradually widened to 70 and at some places to more than 100 feet, the lead giving on an average from 8 to 11 feet depth of water; the banks became clearer of jungle, and the country also more open; stretching away in level alluvial plains. Villages, or collections of herdsman's huts built of wattles and other temporary materials, were spread over the country, but more particularly close by the river. There were flocks of buffaloes here and there; and sheep of most excellent quality, and goats, seemed abundant.

About 8 miles above a large town, on the left bank of the river, named Mír Mahomed Shírah, the stream divides into two branches, the one to the north-half-east, the other to the north-east-by-east. The latter branch, which is called by the natives the "Kutár," we found

<sup>1</sup> Here we met nine small cargo boats laden with grain.

<sup>2</sup> So obscured was it, that we took on board a fisherman, whom we found at hand, to act as pilot. By his direction we came to the mouth of the river, about 200 yards only above the place where we took him on board.

to be the proper channel<sup>1</sup>, but obstructed about 4 miles above its mouth by a large bund thrown across, near a village called "Chunnah," as well as another 3 or 4 miles further up, opposite a village named "Gaha;" about mid-way between these were the remains of an old bund, which gave us considerable trouble in consequence of the narrowness of the opening.

The "Kutár" is about 5 feet broad at the entrance and 5 feet deep; it contracts a little as you proceed up towards the bund at "Chunnah," but before reaching that spot, it expands to about 100 feet in width; its average depth throughout is from 5 to 8 feet. For 2 or 3 miles up from its mouth this channel is beautifully picturesque; its margin is overhung with tamarisk trees, creepers, and underwood, which line it to the water's edge, and its right bank is studded for some distance inland, with babool trees of great size.

On arranging with the native authorities labourers were set to work, and an opening of about 32 or 33 feet wide in each of the above-mentioned bunds was soon effected. The upper or largest bund is, as before observed, close to "Gaha," a village situated on the right bank of the Narra, among dates, tamarisk, and barr trees of a large size, on a rising ground which forms the angle made by the Narra and Kutár. The bund crosses the latter stream in a north-westerly and south-easterly direction, shutting off the waters of the Narra, which at this place is a fine river, 104<sup>2</sup> feet broad, and 8½ feet deep, with a current setting south-easterly, at the rate of 2 miles per hour. Here all our difficulties were at an end.

This river, though exceedingly tortuous<sup>3</sup>, maintains nearly the same breadth as given above, contracting and expanding here and there; whilst the depth amounted from one fathom to sometimes three and a half.

<sup>1</sup> One mile and a half above Mr Mahomed Shírah, a branch, called the "Giddur," debouches into the main stream from the north-north-east. It averages from 18 to 26 feet broad for about 3 miles above its mouth, and then, according to the native account, expands into a broad stream of about 100 feet; some segments of the paddles were taken off, and angles of the banks cut away, for the purpose of tracking the vessel up to the broad part of the stream; but after proceeding up about 200 yards, we were obliged to abandon the attempt, after three days' hard labour. The "Giddur" would seem to be the branch taken by the native boats to get into the main stream above, when the bunds in the "Kutár" are up and entire; and I am inclined to believe this, because, though comparatively narrow at its mouth, it is of considerable depth, about 9 feet mid-channel, with a current running at the rate of 2½ miles per hour.

<sup>2</sup> By actual admeasurement.

<sup>3</sup> The first day, in the course of our passage up from the bund of "Gaha," the vessel's head was five times on every point of the compass, so winding is the course of the stream.



The vessel now answered her helm pretty well, excepting occasionally at sharp turnings of the river, when her bow was caught in the strength of the current. From Lake Manchur up to the bund of "Gaha," the country appears but moderately well cultivated, and the inhabitants seemed wretchedly poor, if we may judge from their general appearance, which had not the clean substantial aspect of those who reside higher up the river. Along the banks of the Narra, or main stream, from "Gaha" to where it joins the Indus, are many well-built large villages interspersed with those of the less permanent materials above mentioned; water-wheels in full working order are fixed at longer or shorter intervals on each side of the river; but though the cultivated lands had a very refreshing appearance and looked vigorous, it was easy to perceive from the tamarisk, milk-bushes, &c., left growing here and there in full strength in the midst of the crops, that cultivation is performed in a very slovenly style; various kinds of trees of great size grow on all sides, and would yield plenty of timber for the construction of water-wheels and other agricultural purposes,—large droves of water buffaloes were passed at frequent intervals. Droves of cows, flocks of excellent sheep, and goats, were seen scattered over the country; the chief articles of cultivation at the time we passed through, and those principally close along the margin of the stream, were cotton, sugar, and rice.

On the main stream, that is, between "Gaha" and the Indus-mouth of the Narra, there appears considerable traffic; we passed boats of various sizes, some lying near the different villages, others proceeding down the river laden with grain and fodder, and the people in apparently better plight than their brethren lower down the river, near the Manchur; they showed fewer signs of poverty, and pestered us less with begging.

In consequence of the vessels steering so badly in that part of the river between the Manchur Lake and the "Kutár," it is difficult to form an estimate of the distance, but I am inclined to reckon it about 60 miles, *i. e.*, from the lake to the bund of "Gaha."

From the latter place to the Indus, the vessel was under steam for 63 hours. The first 40 hours, average strength of current against us, 2 miles per hour; next 15 hours, current against us, 3 miles per hour; next 8 hours, current against us, 4 miles per hour; and assuming 7 miles per hour as the average speed of the vessel, we thus have the average distance from the village of "Gaha," to where the Narra joins the Indus, 28 miles below Sukkur, 284 miles. I calculate that a vessel of the same horse-power as the "Meteor," *viz.*, 24 horse-power, did she but steer well, might make the passage

from Sehwan, through the Narra, to the Indus, during the months when the river is high, in about 80 hours' steaming, exclusive of the time consumed in taking in fuel. Thus, from Sehwan to the "Manchur" mouth of the Narra 5 hours, from Lake Manchur to "Gaha" 12 hours, and from "Gaha" to the Indus 63 hours.

A steamer to ply successfully on the Narra should, I think, not be more than 80 feet in length and 16 or 17 feet broad, measuring from the external rings of the paddles; draught from  $2\frac{1}{2}$  to 3 feet, *and she must steer well in shallows, and obey her helm quickly in her own draught of water.* Plenty of fuel could be had, particularly about the upper part of the river. To native crafts or boats of any description, the navigation is remarkably easy and perfectly safe, the water being quite smooth, and the average strength of current not very great, except near to where the Narra joins the Indus. They pull along with ease or track when the jungle on the banks permits it; or take advantage of breezes when they can; and though the turnings and windings of the river are often sharp, yet the currents which sweep round them bear no comparison to those in the Indus, which render the navigation there both tedious and dangerous.

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